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DISCUSSION PAPER NO. 327

Cost-Effectiveness of After-Tax Financing: Flow-Through Shares in Canada

by

Glenn P. Jenkins

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FOREWORD

This paper is one of the outputs from Council's three year study of the taxation of capital income -- or of the income derived from savings and investment. The study program had important dimensions in both time and space. The effects of capital taxation on both present and future output and standards of living were scrutinized. Taxes levied by all levels of Canadian government were studied as were the international implications of the taxation of capital income. Another important emphasis in the study program was on the interrelationship among specific measures of capital taxation. Here, general equilibrium and other techniques were used to examine the various measures as an interrelated system. Separate studies were also undertaken of specific measures of capital taxation including the personal and corporate income taxes, sales and transaction taxes, property taxes, and resource taxes.

An important feature of the present tax system is the provision of after-tax financing instruments. Notable among these are flow-through shares which are designed to help non-taxpaying mining and petroleum companies to take advantage of the various tax incentives accorded to the resource sector.

This study measures the cost-effectiveness of flow-through shares and finds that they are an extremely inefficient method of getting cash into the hands of non-taxpaying companies in exchange for their giving up tax allowances. The study concludes that direct refundability at a rate of 30 cents per dollar of tax allowances given up by a firm would be less costly to the government in terms of tax revenue foregone than the use of flow-through shares.

Dr. Jenkins is an Institute Fellow of the Harvard Institute for International Development and was Assistant Deputy Minister of the Tax Policy and Legislation Branch of the federal Department of Finance. He has published extensively in the field of public finance.

Judith Maxwell
Chairman

RÉSUMÉ

EFFICACITÉ DES COÛTS DU FINANCEMENT APRÈS IMPÔT; LES ACTIONS ACCRÉDITIVES AU CANADA

Ce document tente d'évaluer l'efficacité des actions accréditives en tant que moyen de financement après impôt. Ce type d'action a été conçu en vue d'aider les sociétés minières et pétrolières non imposables à tirer avantage des stimulants fiscaux accordés à ces industries.

L'efficacité est mesurée ici en établissant le ratio entre, d'une part, la valeur actuelle de la perte marginale de revenu d'impôt subie par le gouvernement et, d'autre part, l'augmentation de la valeur actuelle des avantages fiscaux obtenue par les sociétés émettant des actions accréditives. Si le ratio était égal à un, ce recours fiscal correspondrait à un mécanisme de transfert sans frais du point de vue du gouvernement. Mais pour les sept cas examinés dans cette étude, la perte de revenu d'impôt va d'environ 1,50 $ pour chaque 1 $ supplémentaire d'avantages fiscaux accordés à une société non imposable, jusqu'à la somme élevée de plus de 16 $ de perte de revenu par dollar d'avantages fiscaux consentis.

Selon cette analyse, il est clair que le gouvernement pourrait réduire substantiellement ses pertes de revenu d'impôt en concevant un système plus efficace pour laisser des liquidités aux mains des sociétés non imposables, en échange de l'abandon de leurs déductions d'impôt. Un autre moyen possible consisterait évidemment à recourir davantage à des remboursements directs pour de telles déductions d'impôt. D'après certains résultats de cette étude, un taux de remboursement direct d'impôt substantiellement inférieur à la valeur normale de ces déductions d'impôt accordées à une société pleinement imposable serait plus avantageux pour la plupart des sociétés non imposables que le recours aux actions accréditives. Un taux de remboursement direct de 30 cents pour chaque dollar de déduction d'impôt auquel l'entreprise renoncerait constituerait, pour tous les cas examinés dans cette étude, une amélioration sur le recours aux actions accréditives. Une telle réduction du taux de remboursement d'impôt serait également moins coûteuse pour les gouvernements que ne le sont les actions accréditives.

ABSTRACT

COST-EFFECTIVENESS OF AFTER-TAX FINANCING;

FLOW-THROUGH SHARES IN CANADA

This paper evaluates the efficiency of flow-through shares as an after-tax financing instrument. This instrument was designed to assist non-taxable mining and petroleum companies in benefitting from various tax incentives given to these sectors.

Efficiency is measured here as the ratio of the present value of the incremental loss in tax revenues incurred by the government, to the increase in the present value of the tax benefits received by the corporations that issue flow-through shares. If this ratio is equal to one, then the tax instrument is a costless transfer mechanism from the government's point of view. For the seven cases examined in this study, the loss in tax revenue ranges from about $1.50 of revenue loss for an additional $1.00 of tax benefits transferred to a non-taxable company, to a high of over $16.00 of revenue loss per dollar of tax benefits transferred.

From this analysis, it is clear that the government could reduce its waste of tax revenues substantially through the design of a more efficient system of getting cash in the hands of non-taxable operating companies, in exchange for their giving up their tax deductions. The increased use of direct refundability for such tax deductions is an obvious alternative. There are indications from this study that a rate of direct tax refundability substantially lower than the normal value of these tax deductions to a fully-taxable firm would be more advantageous to most non-taxable firms than the use of flow-through shares. A rate of direct refundability of thirty cents per dollar of tax deductions given up by the firm would be an improvement over the use of flow-through shares for all of the cases examined in this study. Such a reduced rate of tax refundability would also be less costly to the government than is the use of flow-through shares.

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1. INTRODUCTION

Income-tax systems that allow for the accelerated depreciation of investment expenditures, or provide generous investment-tax credits, have the common characteristic of causing a large proportion of corporations, in any given year, to be non-taxable. These firms tend to be younger, smaller, and heavier investors than the average, with less diversified earnings. In short, they do not have enough taxable income from prior investments to absorb the tax deductions and credits generated by their present investment activities. When a large number of firms are not able to use the tax preferences as fast as legally allowed, pressures arise for the creation of innovative after-tax financing (tax shelter) instruments. The political attractiveness of responding to these pressures is enhanced by the fact that the types of firms that become non-taxable in this way are often precisely those that the government would like to support.

Direct refundability by the government for the tax value of the losses created by these tax preferences would give these firms the same incentive that is given to taxable corporations. This option has been generally rejected by governments and business interests, for many of the same reasons. They usually are concerned that they will not be able to sustain politically the generous tax provisions if they become a visible budgetary expenditure. Refundability of unused tax deductions would also be expensive for the government, and would likely force it to reduce the statutory level of tax preferences. Such reductions in tax preferences would hurt the large, well-established corporations. In spite of these reservations, the Government of Canada has in the past three

years taken a number of tentative steps to increase the degree of refundability in the tax system.

The mining and petroleum industries in Canada are classic cases of industries enjoying generous tax preferences. In the early 1980s, approximately two-thirds of the oil and gas companies in Canada were non-taxable, with a similar pattern also holding for mining companies. With the unused banks of tax deductions accumulating, particularly among the smaller, Canadian-owned oil and gas firms, measures were taken in 1981 to make the flow-through share a more attractive after-tax financing instrument.

In early 1982, the first major public flow-through share offering was made by Numac Oil and Gas. A number of issues followed, but the frequency of such issues has declined with the decline in exploration and development activity. In addition, the Petroleum Incentive Program, through which the government gives grants to finance such activities, has served as a strong substitute to such after-tax financing instruments in the oil and gas sector. Flow-through shares finance a comparatively larger proportion of explorations in the mining sector than in the oil and gas sector, but historically have not exceeded an estimated ten to twenty per cent of total investments.

The flow-through share issues that were made provide a useful empirical base for evaluating the cost-effectiveness of such after-tax financing schemes. The objective of this paper is to determine the level of efficiency that has been attained through the use of flow-through shares as a mechanism for utilizing tax deductions more quickly.

Efficiency is measured here as the ratio of the present value of the incremental loss in tax revenues incurred by the government, to the increase in the present value of the tax benefits received by the corporations that issue flow-through shares. If this ratio is equal to one, then the tax instrument is a costless transfer mechanism from the government's point of view. To the degree this ratio is greater than one, it tells us the additional premium that has to be paid to the investor to compensate him for additional risks and transaction costs per incremental dollar transferred to the corporation. To the degree that this premium to the investor is a compensation for costs incurred, both risk and tangible costs, it is a measure of the economic cost of using this after-tax financing instrument.

2. THE FLOW-THROUGH DEDUCTIONS

In the natural-resources field (petroleum and mining), there are certain expenditures on exploration and development which may be renounced in favor of shareholders who provide the money for those expenditures. Flow-through shares provide a mechanism by which a corporation may "sell" these expenditures to investors in return for equity. More specifically, a flow-through share is issued by a corporation to an investor in return for exploration and development expenses that the investor incurs for the benefit of the corporation (ITA Section 66).

Most issues are ordinary common or convertible shares which are both publicly or privately placed. In short, flow-through shares are a form of tax-

based financing for corporations in the natural-resources field that require investment capital. This capital may be obtained on favorable terms by selling shares at a premium, in relation to the existing market price, in exchange for tax write-offs to investors who can use such tax deductions immediately.

The flow-through provisions, however, do not apply to certain "prescribed shares". This is essentially a restriction on short-term financing arrangements which, although nominally equity issues, have more of the characteristics of debt instruments. For a share not to fall into the "prescribed" category, it must be a common share, or the issuer cannot be required to buy back the share for a minimum of five years (Taves, 214).

In a flow-through, share-financing arrangement, the outside investor expends money on Canadian exploration expenses (CEE), Canadian development expenses (CDE), or Canadian oil and gas property expenses (COGPE), for the benefit of the corporation, in return for shares in the corporation. However, the corporation retains the property rights in the resource assets in which these expenditures are made.

The precise definition of these expenses is complicated, but may be summarized as follows: CEE includes a) any geological or geophysical expenses in connection with petroleum or natural-gas exploration in Canada; b) expenses incurred in drilling or completing oil or gas wells in a new field; and c) exploration and development costs on mineral resource properties. CDE includes a) expenses incurred in drilling or completing oil and gas wells in Canada after the commencement of production; and b) the costs incurred in acquiring a

Canadian resource property that is a mineral resource. COGPE includes costs incurred in acquiring a Canadian resource property that is an oil and gas property (Sullivan, 559).

3. TECHNICAL REQUIREMENTS

To be eligible for the tax deductions, the investor must be put in the legal position of making the CEE, CDE, and COGPE expenses directly. From a policy perspective, an investor could realize the same tax consequences if he simply subscribed for shares of a corporation and permitted the corporation to use those funds to incur the appropriate CEE, CDE, and COGPE which is then allocated to the shareholders. However, the wording of the relevant statutory provision has required that the expenses be incurred by the investor (who seeks the deductions), and that the shares be issued only after the investor has incurred the appropriate expenditures. This provision, while maintaining the legal niceties of giving these deductions only to those incurring directly such expenditures, has been the source of considerable inefficiency in the allocation and absorption of risk. Due to these difficulties, the Minister of Finance proposed in the Budget of February 26, 1986, to amend the Income Tax Act to allow the corporation to renounce resource expenses it incurred in favor of an investor (Minister of Finance, 1986, p. 60).

Prior to these proposals coming into force in February 1986, the usual method of complying with these legal requirements has been the agency agreement: the corporation acted as agent for the investor and incurred the appropriate CEE, CDE, and COGPE. In order for the investor to be considered to have

incurred the expenses in a proper manner, the corporation must clearly have been appointed as agent for the investor (Struck, 335).

In a private transaction, a simple agency agreement was sufficient to document the fact that the corporation was incurring the expenses as agent for the investor, and that it was the funds of the investor which were being expended and not those of the corporation. However, in a public financing in which the corporation issues a prospectus, and members of the public acquire shares in the corporation, the agreement was more complicated. Here the investment (or subscription funds) was deposited with an independent trustee who held the funds in trust for the public. The funds were normally placed in an interest-bearing account. Since the funds continued to be owned beneficially by the investor, the interest generated would be included in the investor's income and taxed accordingly (Flynn, 626).

After the corporation carried out the exploration and development program referred to in the prospectus, and incurred the expenditures, it presented a statement of its expenses to the trustee, who released the subscription funds. Unspent funds were returned to the investors. Interest earned on the funds during the intermediate period could be either retained by the corporation, paid back to the investors, or used to incur additional CEE, CDE, or COGPE, depending on the agreement. Upon completion of the program, the appropriate number of shares were issued to the investors, based on the original subscription for the shares (Ward, 14-224).

The corporation, by entering into a flow-through share agreement, is giving up permanently deductions to which it would otherwise have been entitled providing, of course, that it could have utilized them. Further, because of the flow-through requirement that the investor be the one to incur the expenses, the corporation loses its ability to claim deductions not only under the federal tax system, but also under parallel provincial legislation (Taves, 226). The issue for the corporation, therefore, is whether the premium it receives on the flow-through shares outweighs the tax benefits forgone.

The CEE, CDE, and COGPE allocated to the investors are accumulated in separate "pools" of such costs, together with other similar expenditures flowing from separate investments. In calculating his taxable income from all sources, the investor may deduct an amount equal to a percentage of such expenses. His claim will be based on the unabsorbed balance of expenditures in these pools at the end of his taxation year, at a rate of one hundred per cent for CEE, thirty per cent for CDE, and ten per cent for COGPE. To the extent that the investor does not deduct the balance of his cumulative expense pools, the balance can be carried forward and used as deductions in subsequent taxation years. If the expense pool is a negative amount at the end of the taxation year (because of Petroleum Incentive Program payments), the negative amount must be included as income for the taxation year (Sullivan, 556).

4. THE PETROLEUM INCENTIVE PROGRAM

As noted above, the cumulative expense pools for CEE and CDE are reduced by any payments received under the Petroleum Incentive Program (PIP) that has been

in existence from 1981 to 1986. In 1986, the volume of PIP grants had been greatly phased down, but some grants will continue to be paid over the following two or three years. The PIP has provided for a system of direct cash grants for oil and gas exploration and development that had been delivered through the tax system (earned depletion) because tax-based incentives were of little benefit to non-taxable corporations. It favored Canadian corporations (and individuals) by providing major incentives that are outside of the tax system.

Only those businesses that were fifty per cent or more Canadian-owned and controlled were entitled to PIP grants. The size of the grants obtainable depended, in addition, on the type, location, and timing of the expenditures. For example, an applicant with a Canadian ownership (COR) of "Level-1" (being at least seventy-five per cent Canadian-owned and -controlled) was entitled to receive a payment in cash of thirty-five per cent of eligible exploration expenses, and twenty per cent of eligible development expenses where made on provincial lands (Struck, 319). In the case of exploration expenses on Canadian lands, the PIP escalated to eighty per cent of eligible expenses. PIP grants were concentrated in a few corporations, and indeed, eighty-five per cent of total PIP payments made by the government in 1982 were received by ten corporations.

It is the corporation, and not the shareholder, that is qualified to apply for a PIP grant. But usually, provision is made for such grants to be received by the corporation in trust for the investor, and are distributed to him without undue delay (Flynn, 627). The receipt of such grants by the investor

substantially improves the yield on the flow-through share. Thus, high COR corporations can achieve considerably more attractive terms of issue than can low COR corporations.

Since it is the corporation and not the investor that applies for and obtains the PIP grant, PIP payments are not included in the investor's income for tax purposes. However, they are applied to reduce the investor's cumulative CEE or CDE pool. The reduction occurs when the investor receives, or is entitled to receive, the PIP payment. Generally, the PIP incentive is not applied for in the taxation year in which the eligible expenditure is made, and the expense pools are not reduced until the next year.

In some instances, however, PIP payments will be used by the corporation, acting as agent for the investor, to incur further resource expenditures. the corporation's cumulative CEE and CDE accounts from past years are reduced. By doing this, the reduction of the investor's cumulative CEE or CDE is avoided. In place of the forgone PIP payments, the investor could receive either additional flow-through shares, or obtain a reduction in the subscription price for the initial flow-through shares (Flynn, 628).

5. AN EXAMPLE OF A FLOW-THROUGH SHARE

An example of a typical flow-through issue in the oil and gas sector, and the tax implications to a new investor in the fifty-per-cent tax bracket investing in a corporation which is one hundred per cent Canadian-owned and involved in a project on provincial lands, is given in Table 1.

In the example, the investor spends $700 on Canadian exploration expenses (which carry a one hundred per cent deduction), and $300 on Canadian development expenses (which carry a thirty per cent deduction). The total write-off tax purposes obtainable in Year 1 as a result is $790.

If the corporation applies for the PIP grants in the year following the one in which the expenditures are made, then one hundred per cent of the CEE can be written off in Year 1, and the CEE pool balance will be zero. However, the CDE pool balance will be $210, because only $90 (thirty per cent of the expenses) may be deducted. In addition, the investor will be entitled to receive PIP incentive payments in Year 2 amounting to thirty-five per cent of exploration expenses, and twenty per cent of development expenses. These PIP payments must be deducted from the respective CEE and CDE pools. In the case of the CEE pool which is zero, the PIP payment for exploration expenses of $245 is treated as income. This is because there is no cumulative CEE balance from which the PIP may be deducted. In the case of the CDE pool, since there is a balance remaining from which a $63 write-off is available in Year 2, the PIP payment of $60 for development expenses made in that year is deducted to give a net CDE deduction of $3. Thus, the taxable income in Year 2, which stems solely from the PIP payments, is $242.

Applying the relevant deductions and PIP payments, the after-tax cost of the $1,000 investment within a two-year frame works out to be $421. If the cost funds (r) are taken into consideration, the after-tax cost will be slightly higher or equal to $1,000 - 395 - 426/(1-r)).

Table 1

Calculation of Tax Deductions for Flow-Through Shares

	CEE	CDE	Total
Year 1			
1. Resource expenditures			
a) CEE	$ 700	-	$ 700
b) CDE	-	$ 300	300
c) Total	700	300	1,000
2. Deductions			
a) CEE (at 100%)	$ 700	-	$ 700
b) CEE (at 30%)	-	$ 90	90
c) Total	700	90	790
3. Pool Balances			
a) CEE (1-2a)	-0-	-	-0-
b) CDE (1-2b)	-	$ 210	$ 210
Year 2			
4. PIP Payments			
a) 35% of exploration (1a*0.35)	$ 245	-	$ 245
b) 20% of development (3b*0.3)	-	$ 60	60
c) Total	245	60	305
5. Deductions			
a) CEE @ 100% (3a*1)	-0-	-	-0-
b) CDE @ 30% (3b*0.3)	-	$ 63	$ 63
c) Total	-0-	63	63
6. Pool Balances			
a) CEE (3a-5a)	-0-	-	-0-
b) CDE (3b-5b)	-	$ 147	$ 147
7. Income			
a) From PIP (4c)	$ 245	$ 60	$ 305
b) Net Income (7a-5c)	245	(3)	242

Before tax expenses		$1,000
Less tax deductions in Year 1 (790*50%)	395	
Less PIP payments in Year 2	3[illegible]5	
Plus income tax in Year 2 (242*50%)	121	
After-tax cost		$ 421

6. MINING DEPLETION ALLOWANCE, TAX TREATMENT OF SHARES

As noted earlier, the actual expenses for exploration and development in the natural-resources field are deductible in computing income. In addition, a further deduction, the depletion allowance, is permitted as an additional incentive in the mining sector (ITA Section 65 (2)). The depletion allowance permits an investor to deduct specified allowances in respect to oil and gas wells or mineral resources in calculating income. The basic rule provides that a) an investor earns $1 of depletion base for each $3 of qualifying expenditures, and b) he may deduct from his depletion base up to a maximum amount equal to twenty-five per cent of income from any source, provided that the deduction does not exceed his earned depletion base. Thus, an investor will be able to obtain an immediate 133-1/3-per-cent deduction in respect to minimum exploration expenses (CEE) if he has sufficient taxable income (Taves, 229). The only mining expense that qualifies as a development expense (CDE) is the cost of the lease or license (Ward, 14-37).

The increase in the use of flow-through shares to raise equity capital can, in large part, be traced to changes in their tax treatment. Prior to the budget of November 12, 1981, flow-through shares were deemed to be inventory

rather than capital property and with a base cost of nil (ITA Section 66.4). Tax treatment as inventory meant that when the shares were sold, the proceeds of the sale were taxed fully as income. On the other hand, tax treatment as capital property means that the proceeds of the sale are taxed as capital gains at a rate one-half that of income. Because of the unfavorable tax treatment given to flow-through shares relative to limited partnerships prior to 1982, the latter were the after-tax financing vehicle most often used to raise equity capital for corporations. However, the November 12, 1981 amendments to the Income Tax Act permitted flow-through shares to be classified as either inventory or capital property (Taves, 211).

Flow-through shares continue to be treated as having been acquired at a cost of nil for tax purposes. Therefore, when the shares are later sold by the investor, the capital gain realized will be equal to the sale price (subject, of course, to changes in the cost base of those shares). The corporation, therefore, gives up one hundred per cent of the deductions relating to the resource expenditures, while the investor, if he were to sell the share immediately, effectively receives a deduction for only fifty per cent of those expenditures because of the capital gains tax that would have to be paid. On the other hand, if the flow-through shares when sold are considered to be inventory (as is the case with all flow-through shares purchased before November 13, 1981), the proceeds of such sales may be offset against the balances in the CEE, CDE, and COGPE accounts. This offset is not available if these flow-through shares are treated as capital property (Flynn, 625).

In the evaluation of the tax benefit from these instruments, the timing of the tax deduction and the taxation of the gain on the shares is critical. In the absence of flow-through shares, such tax deductions must be carried forward until the company comes into a taxable position. The flow-through share allows the tax deductions to be taken immediately, or soon after the expenditures have been made, while postponing the tax on the gain on the shares until the time that the investor decided to sell them. The changes in the capital-gains laws proposed in the May 1985 budget that eliminated capital gains tax from the first $500,000 of capital gains will have an important impact on flow-through shares. After 1985, no capital gains tax will be paid on the final sale of the shares by those individuals who have not reached their cumulative limit for the capital-gains tax exemption.

7. LIABILITY AND TIMING OF CASH FLOWS

In any financing arrangement, the investor is concerned with limiting his liability to third parties to a minimum. This concern takes on a special importance with reference to flow-through shares because prior to the 1986 Budget, to obtain the tax benefits the investor had to be put in the legal position of incurring the expenditures himself. The prospect of unlimited liability resulting from some unforeseen catastrophe presents a deterrent to investments in flow-through shares; or if such risks were insured, adds to the transaction costs of this financing scheme. Corporations issuing these instruments usually entered into a covenant with the investor to maintain adequate insurance with respect to operations. The corporation could also promise to

indemnify the investor against any losses or damages incurred as a result of the relevant operations (Taves, 217).

However, trying to obtain protection against unlimited liability may give rise to another serious complication. This is because the technical requirements of the Income Tax Act provide that to claim deductions in respect to CEE, CDE, and COGPE, none of the investor's money should be spent on expenses other than CEE, CDE, or COGPE. Guarantees and indemnity contracts entered into by the corporation and the investor could be construed as being impermissible outside expenditures. To get around this problem, any agreement should be structured so that the investor pays a special indemnity fee to the corporation separate from the funds to be used for the resource expenditures. In other words, there must be no mixing of the funds.

A method used to guarantee the proceeds of PIP payments for the investor has been for the corporation to issue to the investor two classes of shares for the expenses incurred by him. One class of shares represents flow-through shares; the other is a class of preferred shares that provides for their redemption for a) a nominal amount if the PIP payments are received, or b) an amount related to the PIP payments that the investor reasonably expected to receive, but did not receive (Flynn, 628).

Matching the timing of expenditures and financing is another constraint to the use of flow-through shares. Corporations want to raise capital when prices and profits, which vary with cyclical conditions, are high, and therefore need flexibility with respect to the timing and mix of the expenditures. Investors,

on the other hand, are mostly concerned that the expenditures are incurred in the year in which their investments are made, in order to set off against current tax liability. Recently the rules have been changed to allow expenditures made up to February 28 of the following year to be used to reduce taxable income in the year.

The proposals in the Budget of February 26, 1986 eliminate the problems concerning investor liability. Now, the operator can undertake the expenditures and renounce them for taxation purposes to an investor up to the amount of the share purchase made by the investor. As a consequence of the proposed amendment, the efficiency of flow-through shares should be improved.

Finally, it should be noted that the expenditures incurred by an investor for the flow-through shares of a corporation may be exchanged for flow-through shares in another corporation. This entitles an investor to obtain additional liquidity in terms of the marketability of his investment. This approach might be desirable, for instance, in a parent-subsidiary situation where the subsidiary is not listed for trading on the stock exchange, but the parent is. Therefore, an investor could incur expenditures in the subsidiary's project, and receive flow-through shares that are convertible into shares of the parent corporation (Taves, 222).

8. PRICING OF FLOW-THROUGH SHARES

The maximum an investor would be willing to pay for a flow-through share is the market value of the share after it is free of all its special tax features,

plus the present value of these features. At the same time, the minimum the issuer is willing to accept is the value of the share if it were sold on the market without the tax features, plus the present value of the tax benefits he is giving up by renouncing them to the flow-through share investors.

If these instruments are efficient, the market price should be close to the maximum amount the investor should be willing to pay. Additional transaction costs or risk incurred by the investor will tend to reduce the amount the investor is willing to pay, hence, reducing the efficiency of the instrument as a device to deliver a tax incentive.

Let us denote the market value of a company's ordinary share as S, the value of the Petroleum Incentive grants as a percentage of total expenditures as P, the present value of Canadian Exploration Expense deductions expressed as a proportion of the value of total flow-through share receipts as KCE, the present value of Canadian Development Expenditures as a proportion of the value of total flow-through share receipts as KCD, the present value of Canadian oil and gas property expenses as a proportion of the current value of total flow-through share receipts as KCOGP; the effective rate of personal income tax (in present value terms) as t_p, the effective rate of capital gains tax (in present value terms) as t_c, and the maximum price an investor would pay for a flow-through share as X. As the adjusted cost base of a flow-through share is zero, the expression relating the market price of an ordinary share to the maximum price of a flow-through share is:

$$(1)\quad X = S + XP + (X-XP)\left[(KCE)(t_p) + (KCD)t_p + (KCOGP)t_p\right] - Stc.$$

Simplifying, we obtain:[1]

$$(2)\quad X = \frac{S(1-t_c)}{1 - (P + (1-P)(KCE(t_p) + KCD(t_p) + KCOGP(t_p)))}.$$

In Table 2, equation 2 is evaluated for an oil and gas flow-through share that has a value of $100 in the market after all the tax benefits have been separated from it. Case I considers three different mixes of CEE, CDE, and COGPE activity when the shares are either sold immediately (effective rate of capital gains tax is = .25), and when they are held for five years (effective rate of capital gains tax = .12, when discount rate is a nominal twenty per cent). Case II considers the same six tax situations when the PIP grant is thirty-five per cent on all expenditures, while Case III deals with these situations when the PIP grant is eighty per cent.

The different levels of PIP payments should cause the premium an investor would be willing to pay for a flow-through share to rise dramatically. We find, however, that if the amount of PIP grants received are subtracted from the price of the flow-through share, the residual is a constant multiple of the market value of the company's shares no matter what the levels of PIP grants are. The premium that people should be willing to pay for a flow-through share after the PIP grants are deducted is a function of the proportion of expenditures made on CEE, CDE, COGPE, the personal tax rate, the length of time the share is held before sale (which determines the effective rate of capital gains tax), and the discount rate.

Table 2

Maximum Price Investor Would Pay for Flow-Through Shares of Petroleum Companies, if No Transaction Costs*

	KCE	KCD	t_p	t_c	Maximum Price (X)	Maximum Price Less PAP Grant	Maximum Premium Less PIP Grant
	1	2	3	4	5	6	7
Case I - (No PIP Grant), KCOGP = 0, S = 100							
A	1	0	.5	.25	150.0	150.0	50.0
B	1	0	.5	.12	176.0	176.0	76.0
C	.7	.22	.5	.25	138.0	138.0	38.0
D	.7	.22	.5	.12	163.0	163.0	63.0
E	.5	.36	.5	.25	132.0	132.0	32.0
F	.5	.36	.5	.12	154.0	154.0	54.0
Case II - 35 Per Cent PIP Grant, KCOGP = 0, S = 100							
A	1	0	.5	.25	231.0	150.0	50.0
B	1	0	.5	.12	271.0	176.0	76.0
C	.7	.22	.5	.25	212.0	138.0	38.0
D	.7	.22	.5	.12	251.0	163.0	63.0
E	.5	.36	.5	.25	203.0	132.0	32.0
F	.5	.36	.5	.12	237.0	154.0	54.0
Case III - 80 Per Cent PIP Grant, KCOGP = 0, S = 100							
A	1	0	.5	.25	750.0	150.0	50.0
B	1	0	.5	.12	880.0	176.0	76.0
C	.7	.22	.5	.25	690.0	138.0	38.0
D	.7	.22	.5	.12	815.0	163.0	63.0
E	.5	.36	.5	.25	660.0	132.0	32.0
F	.5	.36	.5	.12	770.0	154.0	54.0

*A twenty-per-cent nominal rate of discount is used in this analysis. This was approximately the financial rate of discount used to evaluate such instruments at the time in 1982-84, when the various share issues examined later in the paper were sold.

From Table 2, column 6, we find that in these examples, the maximum amount an investor should be willing to pay, after deducting PIP grants, varies from 132 per cent of the market value of an ordinary share of the company, to 176 per cent. The low estimate is a case where fifty per cent of the funds are used for development expenditure, and the investor sells the share immediately. If he were to hold the share for five years before selling, he should be willing to pay 154 per cent of the normal market value of the shares. The 176-per-cent case reflects a situation of one hundred per cent exploration expenditures, and the share is held for five years before being sold.

In summary, the amount that an investor is willing to pay for a flow-through share is larger, the higher is the individual's marginal tax rate, the greater the proportion of expenditures spent of CEE, and the longer he expects to hold the share. From these examples, the investor should be willing to pay a premium (Table 2, column 7) for a flow-through share of between thirty-two per cent and seventy-six per cent over the normal price of a share net of PIP grants.

9. COST-EFFECTIVENESS OF FLOW-THROUGH SHARES

The estimation of the efficiency of the flow-through mechanism can be made through an analysis of the components of a typical flow-through share. The illustrative calculations show the amount of tax revenues that must be forgone by the government in order to provide a non-taxable corporation with an additional dollar of tax benefits delivered through the use of flow-through shares.

Take the case of a corporation in the oil and gas field which wishes to make $700,000 of exploration expenses and $300,000 of development expenses. Suppose the corporation is not eligible for PIP, owing to its low COR rating, and is also not taxable for ten years, and its ordinary shares sell at $100/share. If the flow-through shares were completely efficient, they should sell for $163/share, as shown in Table 2, Case I, Row D, Column 6. However, for illustration purposes, let us suppose they are not completely efficient, and instead sell at $130/share, thus yielding a $30 premium.

The reason that an investor will be willing to pay this premium is the availability to him of the $91 immediately deductible CEE and the $39 of CDE deductions that can be taken by him at a thirty-per-cent declining balance basis. The present value to these deductions, using a discount rate of twenty percent, can be calculated as follows:

Value of tax deductions gained by investor = (Deduction) (Rate of CCA) (Personal Tax Rate)

Year 0	91 + (39.0*.30)	*.50 = 51.4
1	27.3*.30	*.50 = 4.1
2	19.1*.30	*.50 = 2.9
3	13.4*.30	*.50 = 2.0
4	9.4*.30	*.50 = 1.4
5	6.6*.30	*.50 = 1.0

$PV(i) = 51.4 + 4.1/1.2 + 2.9/(1.2)^2 + 2.0/(1.2)^3 + 1.4/(1.2)^4 + 1.0/(1.2)^5 + \ldots = 59.50$

For a flow-through share not to fall into the forbidden "prescribed" category, the issuer cannot be required to buy back the share for five years. If the investor were to sell the share in five years for $100, he would have to pay $25 as capital gains tax at that time because of the zero cost base of the share.[2]

Present value of capital gains tax = $25/(1.2)^4 = 12.08$

Present value of investor's net tax benefits (PV(n) = 59.50 - 12.08 = 47.42

From the above calculation, it can be seen that by being able to begin immediately to utilize the CEE and CDE deductions, the investor garners $47.42 worth of tax deductions for which he has paid the $30 premium. The corporation, because it is non-taxable for ten years, would have been able to claim these deductions beginning in the tenth year. The present value of these deductions, which are lost to the corporation when they renounced, can be calculated as follows:

Tax deductions lost to corporation (@ 50% tax rate)

$$PV(c) = 51.4/(1.2)^9 + 4.1/(1.2)^{10} + 2.9/(1.2)^{11} + 2.0/(1.2)^{12} + 1.4/(1.2)^{13} + 1.0/(1.2)^{14} + \ldots$$

$$= 11.53$$

The benefit to the corporation of engaging in the flow-through transactions is equal to the excess of the premium it receives over the present value of the tax deduction it has given up.

Benefit to corporation = Premium - PV(c) = 30 - 11.56 = $18.44

The cost to the government of this transaction is equal to the tax revenues it loses because of the ability of the investor to claim the CEE and CDE deductions immediately, instead of having them deducted after a ten-year delay.

Cost to government = PV(n) = PV(c) = 59.50 - 11.53 = $47.97

Thus, in this example, the government loses $2.6 worth of tax revenue for every $1 that the corporation receives.[3]

10 COST EFFECTIVENESS OF FLOW-THROUGH SHARES: SEVEN CASES

In 1982-83 there were a number of flow-through share issues in the petroleum and mining sectors. The issues raised in total over $100 million of financing for exploration and development expenditures. From 1983 to 1985, the use of this after-tax financing instrument declined because of the effect of the recession on mining activity and the existence of the cash grants under the Petroleum Incentives Program. The PIP grants both reduced the companies' need for such financing, and increased the likelihood that a significant number of petroleum companies would become taxable in the near future. With the improvement in the economic climate of the mining industry in 1986, and the phasing-out of the PIP grants, the use of flow-through shares as an after-tax financing vehicle is again increasing.

In this study, we wish to examine seven flow-through share issues that were undertaken prior to 1985 to determine their cost-effectiveness as a method of providing a tax incentive. While these cases have not been selected in a purely random fashion, any systematic bias is not intended. The availability of sufficient information has been the principal criterion in determining which share issues are studied.

In Table 3 (column 1), the actual premium investors were willing to pay for a number of issues of flow-through shares are reported. The results of the estimation of the revenue cost per dollar of incremental benefits received by the corporations are presented in Table 3 (columns 2 and 3).

Only in the case of Firm A's flow-through share issue did the actual premium fall within the range defined by the cases in Table 2. It was a convertible preferred issue of at least five years to maturity, and was used primarily for exploration. Even in this case, if it had been fully efficient, it should have yielded a premium of over seventy per cent net of PIP grants, (Table 2, Row B, Column 7), instead of the forty-five-per-cent premium it actually sold for.

The company would have had tax deductions net of PIP equal to approximately 145 per cent of the normal price of their share if a flow-through share issue had not been made. Let us assume that the company would use a nominal discount rate of twenty per cent, and that the company could not use the tax deductions for ten years. For every $100 of normal shares sold, the flow-through shares would cause the company to give up $145 of deductions that would have a present

value of $28.10. If the company has a marginal tax rate of forty-eight per cent, then the present value of the increased taxes due to the company giving up these deductions is $13.49. Hence, the company has gained the difference between the premium of $45, and the $13.49 of increased taxes, or $31.51.

The incremental revenue cost to the government, if there is no capital gains tax, is the difference between the value of the tax deductions taken, i.e., $145(t_p)$ or $72.50 if $t_p = .5$, and the present value of the taxes that would have been eliminated if the deductions were taken inside the company of $13.49. Hence, with 1985 changes in the capital gains rules in place, the incremental revenue cost is $59.01, and the cost per dollar of additional benefits received by Firm A was 59.01/31.51, or $1.87.

At the time these shares were sold, the investor expected to have to pay capital gains tax. This would have amounted to about $12.08 in present value terms if the shares were sold in five years' time. With this capital gains tax in place, the incremental revenue cost would have been (59.01 - 12.08) = $46.93. The cost/benefit ratio would have been 46.93/31.51, or $1.49.

If we change the assumptions on the length of time until the company would be taxable from ten years to five years, then the present value (at twenty per cent) of the tax deductions given up by the company would have amounted to $70.05, with a value of reduced taxes of $33.62. In this case, the company would have gained (45.00 - 33.62), an amount of $11.38. The incremental cost to the government, if no capital gains tax, would be (72.50 -33.62) or $38.88. Hence, the cost to the government is $3.42 per dollar transferred to Firm A.

With a capital gains tax in place, the incremental cost to the government would have been (72.50 - 33.62 - 12.08), or $26.80. In this case, the revenue cost per dollar of tax benefits received by the company is 26.80/11.38 = $2.36.

Firm B used sixty per cent of its funds on CEE, twenty-five per cent on CDE, and fifteen per cent on COGPE. Hence, in terms of the variables in equation 2, the value of CEE = .6, CDE = .18, and COGPE = .06. As common shares were issued with the flow-through feature, let us assume that they were in turn resold by the investor immediately, hence, t_c = .25 if t_p = .50. In this situation, equation 2 would indicate that the premium associated with zero transactions costs would be twenty-nine per cent. If the share were held five years before being sold, then the maximum premium would be thirty-four per cent. The actual premium obtained by the issuer was 11.1 per cent.

For Firm B, the tax deductions they gave up to the flow-through share purchasers were equal to approximately 111 per cent of the normal value of the shares. That is, they were able to sell these shares at a premium (net of PIP grants) of about eleven per cent over the price of ordinary common shares. If the company would have been taxable in ten years' time, then the present value at the time of issue to the CEE, CDE, and COGPE expenses given up would only be equal to $18.06 for every $111 of expenditures undertaken. This estimate is made using the mix of sixty per cent CEE, twenty-five per cent CDE, and fifteen per cent COGPE, the mix of expenditures undertaken by Firm B. A twenty per cent nominal rate of discount was used in calculating the present values. At a forty-eight per cent corporate tax rate, the tax value of the deductions given up would amount to $8.67.

For the investor who can start deducting the CEE, CDE, and COGPE now at rates of one hundred per cent, thirty per cent, and ten per cent respectively, these deductions have a present value (at twenty per cent) of about $93.20 per $111 of investment in the flow-through shares. If he is in the fifty per cent personal income tax bracket, then the cost to the government is $46.60 when there is no capital gains tax on the subsequent sale of the shares.

From this sale of flow-through shares, Firm B gained the share premium of $11.00, but gave up tax deductions of $8.67 per share. It was attractive for the company to undertake this transaction because they gained $2.33 per share used to raise funds for explanation and development activities.

The net tax cost to the government, if no capital gains tax, was ($46.60 - $8.67) = $37.93.

Hence, per $111 of flow-through shares sold, the revenue cost was $37.93, and the gain to the company was $2.33, for a cost/benefit ratio of $16.28 of cost per $1 of benefit. If Firm B were to become taxable in less than ten years, the efficiency of this flow-through share issue is even worse.

If there were a capital gains tax in place, as was expected when these shares were sold, the incremental tax cost to the government would have been reduced by about $12.08 if the shares are held for five years. Hence, the revenue cost would be reduced to $25.85 for $2.33 of benefits to the operator, yielding a cost per dollar of transfer of $11.09.

In the case of Firm C, their flow-through share issue went seventy-five per cent for CEE and twenty-five per cent to reduce their debt. It was an issue of common shares. If these shares were sold immediately, then the maximum premium would be equal to twenty per cent over the common shares market value without the flow-through provision. If the common share were to be held for five years, the maximum premium would be equal to forty-one per cent of the shares' normal market value. The actual premium was 5.2 per cent.

To measure the efficiency of this flow-through share issue, we again assume that the company would not be taxable for ten years, and uses a discount rate of twenty per cent. However, under these conditions, the company should not have sold the shares because the present value of the tax deductions given up amounted to $15.29 per $105.20 of funds raised with a tax cost of $7.34. When they sold the shares, they only obtained a premium of $5.20 in excess of the PIP grants.

To take an extreme set of assumptions, let us suppose that Firm C would never be taxable. In this situation, they gained $5.20 per $105.20 of funds raised. At the same time, the revenue cost to the government, if no capital gains tax, would be $78.90 x .5, or $39.45 per $100 of funds raised.

In this case, the cost/benefit ratio is $39.45/$5.20, or a cost $7.59 per $1.00 of benefits received by Firm C if there is no capital gains tax. If there were a capital gains tax, the cost/benefit ratio is (39.45 - 12.08) /$5.20, or a cost of $5.26 per $1 of benefits.

Firm D's issue of common flow-through shares sold for a premium of 15.8 per cent net of PIP grants over its normal common share price at the time. Because seventy per cent of the expenditures were for CEE and thirty per cent were for CDE, the premium net of PIP grants should have been between thrty-eight and sixty-three per cent, if it were a perfectly efficient financial instrument with no transaction costs.

In this case, if the company would not have been taxable for ten years, the present value (at twenty per cent discount rate) of the CEE and CDE expenditures given up would be $14.00 with a tax value of $6.72 per $115.80 of funding. The Firm C flow-through share issue earned a premium of $15.80. Hence, the company had a net gain of $9.08.

The present value of the tax deductions obtained by the investor (at twenty per cent discount rate and no capital gains tax) amounted to $72.25 per $115.80 of financing, with a revenue cost of approximately $36.13. Hence, the cost/benefit ratio for this flow-through share issue was $36.13/9.08, or $3.99 of costs per $1 of benefits.

With the capital gains tax in place, and the shares sold after five years, the revenue cost to government would be approximately ($36.13 - $12.08) = $24.05. The cost/benefit ratio would then have been 24.05/9.08, or $2.65 per dollar of tax benefits transferred.

In the cases of the flow-through share issue of Firms E and F, the premiums realized were either close to zero or negative. In these cases, the revenue costs were between $38.00 and $50.00 per $100 of financing, even though few, if any, benefits were realized by the firms.

The mining issue of flow-through shares by Firm G is of interest for two reasons. First, it was priced so that the issuer would receive greatest premium over the price of its common shares, as compared to any of the other cases examined here. Second, the issue faced a lack of investor enthusiasm in the market.

It was a one hundred per cent CEE and a common share issue, and yielded a premium of about fifty-one per cent over the normal market value of the shares. Given that the mining sector also enjoys a 33.3 per cent depletion allowance, the total deductions given up by the company are 151 (1.333) = $201.28. These deductions have a present value of $39.00 if the company was not to be taxable for ten years and present value of taxes saved of $18.72.

The investor will receive the total deductions of $201.28, which has a tax value of $100.64. In this case, the incremental revenue costs to the government if no capital gains tax is ($100.64 - $18.72) = $81.92, and the gain to the company in present value terms is ($51.00 - $18.72) = $32.28. In this case, the cost/benefit ratio of this flow-through share issue is $81.92/$32.28, or $2.54 of costs/dollar of tax benefits transferred.

Table 3

Premiums Paid on Flow-Through Shares as Per Cent of Market Price of Normal Share and Their Cost-Effectiveness

	Actual Share Premiums Net of PIP Grants	Revenue Costs/$ of Benefit Transferred if Capital Gains Tax	Revenue Costs/$ of Benefit Transferred if No Capital Gains
Petroleum			
Firm A	45.3%	$1.49 to $ 2.36	$1.87 to $ 3.42
Firm B	11.1	11.09	16.28
Firm C	5.2	5.26	7.59
Firm D	15.8	2.65	3.99
Firm E	-5.2	not defined	not defined
Firm F	0.4	not defined	not defined
Mining			
Firm G	51.0	$2.16 to $ 9.56	$2.58 - $12.31

*It is assumed that the PIP grants were received one year after the shares were sold.

If there were a capital gains tax in place where the shares would be sold in five years' time, then using a twenty-per-cent nominal discount rate would mean that about $12.08 of taxes would be paid (in present value terms). Hence, the cost/benefit ratio for this issue would become ($81.92 - $12.08)/$32.28, or $2.16 of revenue is lost per $1 of benefits transferred.

If Firm G would have been taxable in five years, the present value of the taxes benefits they give us by issuing the flow-through shares would be equal to $46.61. Hence, the net benefit the company receives from this flow-through share issue is ($51.00 - $46.61) = $4.39. In this case, the cost/benefit ratio without capital gains tax is ($100.64 - $46.61)/$4.39 = $12.31 per dollar of tax benefits transferred. With a capital gains tax, the cost/benefit ratio is $41.95/$4.39, or $9.56 of revenue costs per dollar of net tax transfers.

In this case, even though taxpayers gave up from $2.23 to $12.31 of tax benefits for every dollar gained by the firm, investors still did not find this share offering attractive. These estimates of cost indicate an alarming degree of inefficiency created by the use of this method of after-tax financing.

As long as the premium received on the sale of the flow-through share is greater than the present value of the future tax deductions given up by the

firm, such an after-tax financing instrument will be attractive to issuers. At the same time, the revenue cost to the country of using this type of instrument to enable firms to make better use of their tax deductions has been tremendous. As we have found from these examples, the levels of economic waste have usually been multiples of the tax benefit obtained. If the efficiency of the flow-through shares is any indication of the efficiency of other after-tax financing instruments, this evidence would suggest that such instruments should not be used to deliver tax incentives.

11. CONCLUSIONS

Flow-through shares are a very inefficient financial instrument for utilizing tax deductions because they are a very complex instrument, and difficult for investors to evaluate and promoters to market. When investors have difficulty understanding the provisions of a financial instrument, they will certainly be willing to pay less for it.

The actual empirical experience with this after-tax instrument illustrates the importance of the design of tax-based financial instruments. While this instrument was designed to give tax relief to firms that could not use the generous incentives provided to the Canadian resource sector, its main function has been to waste large amounts of tax revenue on financial and legal "middlemen", and to compensate investors for unnecessary risk. While the tax system has often been suggested as an efficient means of channeling incentives, these results indicate that it operates with a level of hidden inefficiency that

would not likely be tolerated in a system of open subsidization or direct government expenditures.

It is clear from the evaluation of this after-tax financial instrument that not enough thought was given to the design efficiency of this instrument by the taxation authorities who created it. If the objective is to provide tax incentives to the operating firms, then the features of this instrument that require agency agreements and insurance in order to make them marketable, are operating at cross purposes to that objective. It is heartening to note that the recent proposals by the Minister of Finance (Budget 1986) will help to reduce some of the transaction costs associated with this type of after-tax financing.

This analysis also indicates that a rate of direct refundability for these tax deductions that is substantially less than their value for a fully taxable firm, would be much more attractive to non-taxable operating mining and petroleum companies than the option of issuing flow-through shares. It would also be much less costly in terms of the loss in tax revenues to the government.

Notes

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1. The analysis is done here with a capital gains tax in place because that was what was expected in 1982-84, when the shares that are examined in detail in this paper were issued.

2. This applies to the period prior to 1985, and before the $500,000 capital gains exemption was introduced in Canada.

3. The revenue loss per dollar of tax transfer is the cost to the government of $47.97 divided by the net benefit to the operator of $18.44.

References

Flynn, Gordon W., "Creative Equity Financing" in Report of Proceedings of the Thirty-Fourth Tax Conference. The 1982 Conference Report, Canadian Tax Foundation, Toronto, 1983.

Government of Canada, Income Tax Act (as amended), 1985.

Partners of Davies, Ward & Beck and Brian J. Arnold. Ward's Tax Law and Planning. The Carswell Company Limited, Toronto, 1983.

Struck, J.D.A., "Evaluation of Oil and Gas Shelters: Impact of the Alberta Agreement and Budget of November 12, 1981". The 1982 Conference Report.

Sullivan, Daniel F., "New Developments in Corporate Financing", Conference Report, Canadian Tax Foundation, Toronto, 1982.

Taves, Kenneth E.G., "Flow-Through Shares: Expenses for Shares", Conference Report, Canadian Tax Foundation, Toronto, 1983.

Minister of Finance, Securing Economic Renewal, Budget Papers, February 26, 1986.